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THE DEVELOPMENT OF MANTIS.

T. D. A. COCKERELL.

DR. D. SHARP, in his admirable work on "Insects" in the *Cambridge Natural History*, vol. v, gives (p. 247) some extraordinary particulars about the development of Mantis, with a figure taken mainly from Dr. Pagenstecher. I have just been observing the facts in the case of a mantis found here, and they do not, in all particulars, agree with Dr. Sharp's account, so that it seems desirable to draw attention to the matter. The eggs removed from the oötheca are elongated and similar to those of Acridiidae in general appearance; the egg covering is quite strong but brittle. On removing the young from the oötheca, just before the time of hatching, they are found to be already attached by threads, as has been described by others.

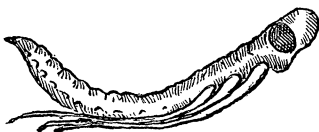


FIG. 1.



FIG. 2.

Fig. 1 represents one of these young. It is well colored, and all its parts are formed; but, as will be seen from the figure, the head has a peculiar appearance, and the legs are all close together. The general color is pale greenish-yellow, but there are conspicuous rosy dorsal markings; the internal fluids are bright green. The eyes are at first sage green, but soon after the emergence of the insect they become blackish. Fig. 2 shows the insect after emergence, when it is hanging by its thread. The thorax begins to elongate, with the natural result of forming a hump and bending the head forward. In this way is developed the little mantis, which is much longer than the emerging form, almost wholly by the elongation of the thorax. In my species the insects certainly do not hang for "some days," since examples which hatched out yesterday, at the earliest,

were running about fully formed this morning. I have been quite unable to see any legs such as Pagenstecher describes for the newly hatched young ; from the time previous to hatching the normal legs are well formed and there are no others. Nor can I satisfy myself that there is any real ecdysis between the pupa-like form and the active young ; at least, all that is shed is apparently a thin egg-membrane, chitinized, however, over the head, forming a sort of cap to protect the bulging anterior end in emergence. Since this structure is developed in the egg, and shed immediately after emergence, should it not be regarded as an oval envelope ?

In view of the above observations, it certainly seems desirable that those recorded for *Mantis religiosa* should be confirmed, as I can hardly believe them to be wholly correct. The species observed by me is a *Stagmomantis*, either *S. carolina* or *S. limbata* ; I am not sure which, as both occur in the Mesilla Valley.

MESILLA PARK, NEW MEXICO, U. S. A.,

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